U.S. Department
of Transportation
**Research and
Special Programs
Administration**

AUG 7 2000

400 Seventh St., S.W.
Washington, D.C. 20590

DOT-E 12095
(FOURTH REVISION)

EXPIRATION DATE: April 30, 2002

1. GRANTEE: Persons listed in Appendix A to this exemption.

2. PURPOSE AND LIMITATION: This exemption authorizes an alternative qualification program for all DOT specification tank cars and for non-DOT specification tank cars used for the transportation of hazardous materials in commerce. This exemption provides no relief from any regulation other than as specifically stated.

3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.

4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 172.203(a), § 172.302(c), Subpart F of Part 180.

5. BASIS: This exemption is based on the Railway Progress Institute's application dated July 17, 2000, submitted in accordance with § 107.109 and the public proceeding thereon, and applications submitted in accordance with § 107.109.

6. HAZARDOUS MATERIALS (49 CFR § 172.101): The proper shipping description authorized under the terms of this exemption shall be as specified in 49 CFR Subpart B of Part 172, an exemption issued under 49 CFR Subpart B of Part 107, as authorized in § 171.12 or § 171.12a.

7. PACKAGING(S) AND SAFETY CONTROL MEASURES: Packagings authorized are DOT and non-DOT Specification tank cars. Each tank car must be qualified in accordance with the Alternative Tank Car Qualification Program (TCQ-1) attached as Appendix B.

8. SPECIAL PROVISIONS:

(a) The marking requirement of § 172.203(a) and § 172.302(c) are waived.

(b) Persons who receive tank cars for qualification under the terms of this exemption may qualify them on behalf of a holder or party to this exemption, provided all terms of this exemption are complied with and a current copy of this exemption, including all appendices, is maintained at the location where such qualification occurs.

9. MODES OF TRANSPORTATION AUTHORIZED: Rail freight.

10. MODAL REQUIREMENTS: None as a requirement of this exemption.

11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this exemption and penalties prescribed by the Federal hazardous materials transportation laws, 49 U.S.C. 5101 *et seq*:

- All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
- Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee" as defined in § 171.8, who performs a function subject to this exemption must receive training on the requirements and conditions of this exemption in addition to the training required by § 172.700 through § 172.704.

No person may use or apply this exemption, including display of its number, when the exemption has expired or is otherwise no longer in effect unless a regulation has been amended making the exemption no longer necessary.

12. REPORTING REQUIREMENTS: The carrier is required to report any incident involving loss of packaging contents or packaging failure to the Associate Administrator for Hazardous Materials Safety (AAHMS) as soon as practicable. (Sections 171.15 and 171.16 apply to any activity undertaken under the authority of this exemption.) In addition, the holder(s) of this exemption must inform the AAHMS, in writing, of any incidents involving the package and shipments made under the terms of this exemption.

Issued at Washington, D.C.:

J. Suzanne Hedgepeth

Robert A. McGuire
Associate Administrator for
Hazardous Materials Safety

AUG 7 2000
(DATE)

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Address all inquiries to the Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, Department of Transportation, Washington, D.C. 20590. Attention: DHM-31.

The original of this exemption is on file at the above office. Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

Copies of exemptions may be obtained from the AAHMS, U.S. Department of Transportation, 400 7th Street, SW,, Washington DC 20590-0001, Attention: Records Center, 202-366-5045.

PO: JR/sln

The following are hereby granted party status to this exemption based on their application(s) submitted in accordance with § 107.107 or § 107.109, as appropriate:

Company Name City/State	Application Date	Issue Date	Expiration Date
ACF Industries, Inc. St. Charles, MO	Jul 17, 2000	Aug 10, 2000	Apr 30, 2002
ADM Transportation Co. Decatur, IL	Jul 25, 2000	Oct 12, 2000	Apr 30, 2002
A.E. Staley Manufacturing Company Decatur, IL	Oct 4, 2000, May 7, 2001 & May 16, 2001	Jun 4, 2001	Apr 30, 2002
Aeropres Corporation Shreveport, LA	Jul 12, 2000	Aug 10, 2000	Apr 30, 2002
Agrium Calgary, Alberta	Jun 30, 2000	Aug 10, 2000	Apr 30, 2002
Air Products and Chemicals, Inc. Allentown, PA	Jul 7, 2000	Aug 10, 2000	Apr 30, 2002
AKZO Nobel Chicago, IL	Jul 28, 2000	Aug 10, 2000	Apr 30, 2002
Albemarle Corporation Baton Rouge, LA	Jul 17, 2000	Aug 10, 2000	Apr 30, 2002
American Railcar Industries, Inc., St. Louis, MO	Jul 17, 2000	Aug 10, 2000	Apr 30, 2002
Aristech Chemical Corp. Pittsburgh, PA	Jun 30, 2000	Aug 10, 2000	Apr 30, 2002

Company Name City/State	Application Date	Issue Date	Expiration Date
Arrendadora Nacional de Carros de Ferrocarril, S.A. de C.V./Panamerican Railway Company Florida, Mexico (U.S. Agent: Fitts Roberts & Co., Houston, TX.)	Jul 25, 2000	Aug 10, 2000	Apr 30, 2002
Astaris LLC St. Louis, MO	Jul 12, 2000	Aug 10, 2000	Apr 30, 2002
BASF Corporation Mt. Olive, NJ	Jul 20, 2000	Aug 10, 2000	Apr 30, 2002
BHP Transport International Inc. (BHP Cooper, Inc. Tucson, AZ) San Manual, AZ	Jul 31, 2000	Aug 10, 2000	Apr 30, 2002
BP Amoco Chemical Company Naperville, IL	Jul 26, 2000	Aug 10, 2000	Apr 30, 2002
BP Amoco Oil Company Warrenville, IL	Jul 16, 2000 & Mar 7, 2001	Mar 8, 2001	Apr 30, 2002
Cargill, Inc. Minneapolis, MN	Sep 28, 2000 & Oct 23, 2000	Oct 25, 2000	Apr 30, 2002
Celtran, Incorporated Dallas, TX	Sep 15, 2000	Sep 25, 2000	Apr 30, 2002
Chevron Products Company San Romon, CA	Aug 30, 2000	Sep 19, 2000	Apr 30, 2002
Chevron Oronite Company LLC Houston, TX	Sep 1, 2000	Sep 19, 2000	Apr 30, 2002

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Company Name City/State	Application Date	Issue Date	Expiration Date
Chevron Phillps Chemical Company, LP Houston, TX (Former Grantee: Chevron Chemical Company, LLC)	Jul 28, 2000	Aug 10, 2000	Apr 30, 2002
CIT Rail Resources Chicago, IL	Aug 28, 2000	Sep 19, 2000	Apr 30, 2002
Conoco, Inc. Houston, TX	Jul 27, 2000	SEP 13 2001	Apr 30, 2002
Coors Brewing Company Golden, CO	Jul 26, 2000	Aug 10, 2000	Apr 30, 2002
DOW Chemical N.A. Midland, MI	Jul 21, 2000	Aug 10, 2000	Apr 30, 2002
E.I. Dupont de Nemours & Co., Inc. Wilmington, DE	Jul 12, 2000	Aug 10, 2000	Apr 30, 2002
Eastman Chemical Company, Kingsport, TN	Apr 27, 2000	May 12, 2000	Apr 30, 2002
Eli Lilly & Company Indianapolis, IN	Jul 26, 2000	Aug 10, 2000	Apr 30, 2002
Farmland Industries Kansas City, MO	Jun 30, 2000	Aug 10, 2000	Apr 30, 2002
First Union Rail Corp Rosemont, Il	Jul 26, 2000	Aug 10, 2000	Apr 30, 2002
Flexsys America L.P. Akron, OH	Jul 26, 2000	Aug 10, 2000	Apr 30, 2002
FMC Corporation Philadelphia, PA	Jul 14, 2000	Aug 10, 2000	Apr 30, 2002
Formosa Plastic Corp. Point Comfort, TX	Jul 27, 2000	Aug 10, 2000	Apr 30, 2002

Company Name City/State	Application Date	Issue Date	Expiration Date
Freeport McMoran Sulphur, Inc. Galveston, TX	Jul 17, 2000	Aug 10, 2000	Apr 30, 2002
Frit Car, Inc. Brewton, AL	Aug 25, 2000	Sep 19, 2000	Apr 30, 2002
Frit Car, Inc. Bridgeton, NC	Aug 31, 2000	Sep 19, 2000	Apr 30, 2002
General American Transportation Corporation Chicago, IL	Jul 17, 2000	Aug 10, 2000	Apr 30, 2002
General Electric Railcar Services Company, Chicago, IL	Jul 17, 2000	Aug 10, 2000	Apr 30, 2002
Georgia Gulf Corporation Plaquemine, LA	Aug 30, 2000	Oct 12, 2000	Apr 30, 2002
GLNX Corpation The Woodlands, TX	Jun 30, 2000	Aug 10, 2000	Apr 30, 2002
Honeywell International, Inc. Morristown, NJ (Former Grantee: AlliedSignal, Inc.)	Jul 12, 2000	Aug 10, 2000	Apr 30, 2002
Huntsman Corporation Houston, TX	Jul 12, 2000	Aug 10, 2000	Apr 30, 2002
IMC-Global North Brook, IL	Jun 30, 2000	Aug 10, 2000	Apr 30, 2002
Industria Quimica del Istmo, S.A. de C.V., Monterrey, N.L. Mexico (US Agent: Polycyd Inc., Dallas, TX)	Aug 25, 2000	Oct 12, 2000	Apr 30, 2002

Company Name City/State	Application Date	Issue Date	Expiration Date
J. R. Simplot Company Pocatello, ID	Jun 30, 2000	Aug 10, 2000	Apr 30, 2002
LCI LTD. Jacksonville, FL	Aug 23, 2000	Sep 1, 2000	Apr 30, 2002
LLCX Inc Jacksonville, FL	Aug 23, 2000	Sep 19, 2000	Apr 30, 2002
Martin Gas Sales Inc. Kilgore, TX	Jul 31, 2000	Aug 10, 2000	Apr 30, 2002
Minnesota Corn Processors, LLC Marshall, MN	Feb 9, 2001	Feb 27, 2001	Apr 30, 2002
Monsanto Company St. Louis, MO	Jul 12, 2000	Aug 10, 2000	Apr 30, 2000
Occidental Chemical Corporation, Dallas, TX	Jul 18, 2000	Aug 10, 2000	Apr 30, 2002
Old World Industries, Inc. Northbrook, IL	Jul 26, 2000	Aug 10, 2000	Apr 30, 2002
Olin Chlor Alkai Products Olin Corporation Charleston, TX	Jul 26, 2000	Aug 10, 2000	Apr 30, 2002
P4 Production LLC ST. Louis, MO	Jul 12, 2000	Aug 10, 2000	Apr 30, 2002
PCS Nitrogen Incorporated, Saskatoon, Saskatchewan Canada	Jun 29, 2000	Aug 10, 2000	Apr 30, 2002
PCS Phosphate Company, Inc., Saskatoon, Saskatchewan, Canada	Jun 29, 2000	Aug 10, 2000	Apr 30, 2002

Company Name City/State	Application Date	Issue Date	Expiration Date
Phillips Petroleum Co. Bartlesville, OK	Jul 28, 2000	Aug 10, 2000	Apr 30, 2002
PLM Transportation Equipment Corporation Rail Division of PLM International, Incorporated, Chicago, IL	Jul 28, 2000	Aug 10, 2000	Apr 30, 2002
PPG Industries Inc. Pittsburgh, PA	Jul 21, 2000	Aug 10, 2000	Apr 30, 2002
Praxair, Inc. Tonawanda, NY	Jul 21, 2000	Aug 10, 2000	Apr 30, 2002
Procor Limited Oakville, Ontario	Jul 17, 2000	Aug 10, 2000	Apr 30, 2002
RailAmerica Equipment Corporation Boca Raton, FL	Jul 26, 2000	Aug 10, 2000	Apr 30, 2002
Rampart Range Corp. Larkspur, CO	Sep 25, 2000	Oct 12, 2000	Apr 30, 2002
Reagent Chemical & Research, Inc. Port Arthur, TX	Jul 31, 2000	Sep 1, 2000	Apr 30, 2002
Relco Tank Line, Inc. Downers Grove, Il	Aug 20, 2001	Aug 29, 2001	Apr 30, 2002
Resolution Performance Products, LLC Houston, TX	Jul 10, 2001	Jul 19, 2001	Apr 30, 2002
Rhodia, Inc. Cranbury, NJ	Jul 19, 2000	Aug 10, 2000	Apr 30, 2002
Safety-Kleen Corporation Clumbia, SC	Aug 1, 2000	Sep 19, 2000	Apr 30, 2002

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Company Name City/State	Application Date	Issue Date	Expiration Date
Services Unlimited Marina Del Ray, CA	Jul 29, 2000	Aug 10, 2000	Apr 30, 2002
Shell Chemical Company Houston, TX	Jul 27, 2000	Aug 10, 2000	Apr 30, 2002
Solutia, Inc. St. Louis, MO	Jul 14, 2000	Aug 10, 2000	Apr 30, 2002
Sterling Chemical, Inc. Texas City, TX	Jul 19, 2000	Aug 10, 2000	Apr 30, 2002
Terra Nitrogen Tulsa, OK	Jun 29, 2000	Aug 10, 2000	Apr 30, 2002
The Fertilizer Institute Washington, DC	Jun 29, 2000 & Jul 13, 2000	Aug 10, 2000	Apr 30, 2002
The Andersons, Inc. Maumee, OH	Jan 25, 2001	Feb 27, 2001	Apr 30, 2002
Trinity Industries, Inc., Dallas, TX	Jul 17, 2000	Aug 10, 2000	Apr 30, 2002
Union Tank Car Company Chicago, IL	Jul 17, 2000	Aug 10, 2000	Apr 30, 2002
Union Carbide Corporation South Charleston, WV	Jul 12, 2000	Aug 10, 2000	Apr 30, 2002
Vulcan Materials Co. Birmingham, AL	Jul 12, 2000	Aug 10, 2000	Apr 30, 2002
Walter Haffner Company Mobile, AL	Jul 31, 2000	Aug 10, 2000	Apr 30, 2002

Robert A. McGuire
for Associate Administrator for
Hazardous Materials Safety

AUG 7 2000

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Alternative Tank Car Qualification Program

TCQ-1

Appendix B to DOT-E 12095

Appendix B to DOT-E 12095 09/29/98

Alternative Tank Car Qualification Program

This alternative program establishes the minimum acceptable framework for an owner's qualification program for tank cars and components and replaces 49 CFR Subpart F of Part 180 in its entirety. Owner's should follow this alternative program in developing their written procedures (work instructions), as required by 49 CFR 179.7(d), for use by tank car facility employees. The owner's qualification program for each tank car, or a fleet of tank cars, must identify where to inspect, how to inspect, and the acceptance criteria. Tank car facilities must incorporate the owner's qualification program into their quality assurance program, as required by 49 CFR 179.7(a)(2), (b)(3), and (b)(5).

In order to use this alternative program, an entity must have a valid Department of Transportation (DOT) exemption or be a party to an exemption, issued by the Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, authorizing tank car qualification under this alternative program. For information on obtaining a DOT exemption, see 49 CFR 107.101 *et seq.*

This alternative program is written as though it is part of 49 CFR 100-185, for ease of use and to ensure that the section references are parallel with those in the Federal rule. Technical inquires into this alternative program should be directed to the Federal Railroad Administration, Office of Safety Assurance and Compliance, Hazardous Materials Division, Washington, D.C..

180.501 Applicability.

(a) This alternative program prescribes requirements, in addition to those contained in 49 CFR Parts 107, 171, 172, 173, and 179 of this subchapter, applicable to any person who *manufactures, fabricates, marks, maintains, repairs, inspects, or services tank cars to ensure* continuing qualification.

(b) Any person who performs a function prescribed in this alternative program shall perform that function in accordance with the alternative program.

180.503 Definitions

In addition to the definitions contained in 49 CFR 171.8 and 179.2 the following definitions apply:

"Bottom shell" means that portion of a tank car tank surface, excluding the head ends of the tank, that lies within two feet, measured circumferentially, of the bottom longitudinal centerline of the tank car tank.

"Corrosive to the tank or service equipment" *means a material identified in* Attachment A of this alternative program.

"Design level of reliability and safety" means the level of reliability that is built into the tank car. Therefore, it is inherent in its specification, design, and manufacture.

"Interior heater system" means a piping system that uses a fluid medium to heat the lading within the tank for the purposes of unloading.

"Lining/Coating Owner" means the party responsible for bearing the cost of the maintenance of the lining or coating.

"Tank Car Owner" means the entity identified in UMLER through the owner's marks.

"Maintenance" means inspection, upkeep, or preservation, including ordinary repairs necessary and proper from time to time.

"Qualification" means a careful and critical examination, based on a written program, to verify conformance to a specification followed by a representation of conformance to the specification. For the purposes of this alternative program, the following table indicates the tests and inspections that are required .

Qualification of...	Tests and Inspections	§180.509(*)
Tank	Visual Inspection	d
	Structural Integrity Inspection	e
	Safety System Inspection	h
	Leakage Pressure Test	j
	Thickness[1]	f
Service Equipment	Service Equipment	k
Lining/Coating	Linings and Coatings	i

Note 1: Subparagraph (f)(2) may require thickness tests at an interval different form the other items for qualification of the tank.

"Reinforced tank shell butt weld" means the portion of a butt weld covered by a reinforcing plate.

"Reinforcing plate" means an attachment welded directly to the tank supporting the major structural components for the purpose of preventing damage to the tank through fatigue, overstressing, denting, puncturing, or tearing.

"Reliability" means the quantified ability of a structure to be used in a known environment without failure for a specified period.

"Representation" means certifying in writing or marking on the tank car tank, jacket, or an associated document indicating compliance with the specification.

"Safety system" means thermal protection systems, insulation systems, tank head puncture resistance systems, coupler vertical restraint systems, and systems used to protect discontinuities (e.g., skid protection and protective housings) as required by regulation.

"Service equipment" means equipment used for filling, sampling device, emptying, venting, vacuum relief, pressure relief, heating (if internal to the tank), lading temperature measurement, or measuring the amount of lading within the tank.

"Top shell" means the tank car tank surface, excluding the head ends and bottom shell of the tank car tank.

180.505 Quality assurance program.

The quality assurance program requirements of 49 CFR 179.7 apply.

180.507 Qualification of tank cars.

(a) **General.** Each tank car marked as meeting a DOT specification or any other tank car used for the transportation of a hazardous material must meet the requirements of this alternative program or the applicable specification to which the tank was constructed.

(b) **Tank car specifications no longer authorized for construction.** (1) A tank car prescribed in the following table is authorized for service provided such car conforms to all applicable safety requirements of this subchapter:

Tank Cars Authorized by 49 CFR Part 173	Additional Specifications Authorized	Notes
105A200W	105A100W	1
105A200ALW	105A100ALW	1
105A300W	ICC- 105, 105A300	
105A400W	105A400	
105A500W	105A500	
105A600W	105A600	
106A500X	ICC-27, BE-27, 106A500	
106A800X	106A800	
107A		2

Note 1: A tank built to a Specification DOT 105A100W or DOT 105A100ALW may be altered and converted to DOT 105A200W and DOT 105A200ALW, respectively.

Note 2: The test pressure of a tank built in the United States between January 1, 1941, and December 31, 1955, may be increased to conform to Specification 107A. Original and revised test pressure markings must be indicated and may be shown on the tank or on a plate attached to the bulkhead of the car. Tanks built before 1941 are not authorized.

(2) For each tank car conforming to and used under an exemption issued before October 1, 1984, that authorized the transportation of a cryogenic liquid in a tank car, the owner shall remove the exemption number stenciled on the tank car and stamp the tank car with the appropriate Class DOT 113 specification followed by the applicable exemption number. For example: DOT 113D60W E * * * * (asterisks to be replaced by the exemption number). The owner marking a tank car in this manner shall retain on file a copy of the last exemption in effect during the period the tank car is in service. No person may modify a tank car marked under this paragraph unless the modification is in compliance with an applicable requirement or provision of Subchapter C of 49 CFR.

(3) Specification DOT 113A175W, DOT 113C60W, DOT 113D60W, and DOT 113D120W tank cars may continue in use, but new construction is not authorized.

(4) Class DOT 105A and 105S tank cars used to transport hydrogen chloride, refrigerated liquid under the terms of DOT E 3992 may continue in service, but new construction is not authorized.

180.509 Requirements for qualification of specification tank cars.

(a) **General.** Each tank car owner shall ensure that a tank car facility:

(1) Inspects and tests (examines) each item according to the requirements specified in §180.509;

(2) Evaluates each item according to the acceptable results of inspection and test in §180.511;

(3) Marks each tank car as specified in §180.515 for each item that successfully passes a periodic inspection and test; and

(4) Prepares the documentation as required by §180.517 for each item qualified under this section.

(b) **Conditions requiring qualification of tank cars.** Without regard to the qualification compliance date requirements of paragraph (m) of this section, an owner of a tank or a lining or coating shall ensure that a qualification of the tank or lining or coating is performed if:

(1) The tank car was in an accident or shows evidence of structural damage, such as buckling or corrosion, that may adversely affect its capability to retain its contents;

(2) The tank bears evidence of damage caused by fire; or

(3) The Associate Administrator for Safety, FRA, requires it based on the existence of probable cause that a tank car or a class or design of tank cars may be in an unsafe operating condition.

(c) **Frequency of qualification.** Each tank car shall have an inspection and test according to the requirements of this paragraph.

(1) For Class DOT-107 tank cars, the inner container of Class DOT-115 tank cars, and tank cars of riveted construction, the tank car must have a hydrostatic pressure test and visual inspection conforming to the requirements in Appendix D of the Association of American Railroads Specifications for Tank Cars, or according to the applicable specification in 49 CFR 179.220-23 (DOT-115) or 179.500-14 (DOT-107).

(2) For Class DOT-113 tank cars, see 49 CFR 173.319(e).

(3) Tank cars with fusion welds must be qualified and maintained in accordance with the following table. All qualification requirements need not be done at the same time.

Frequency of Qualification

Section 180.509(*)	Description	Maximum Interval
d	Visual inspection	10 years
e	Structural integrity inspection	10 years
f	Thickness test	See 180.509(f)
h	Safety Systems	10 years
i	Lining or coating (for materials corrosive to the tank)	See 180.509(i)
j	Leakage pressure test	After reassembly
k	Service equipment (including pressure relief devices)	See 180.509(k)

(d) **Visual inspection.** Each tank car owner shall ensure qualification of the tank through an external and internal inspection. At a minimum, the visual inspection must include the following:

(1) Except in areas where insulation, head protection, thermal protection, internal coatings, or internal linings preclude it, an internal and external inspection of the tank shell and heads for abrasion, corrosion, cracks, dents, distortions, defects in welds, or other condition that makes the tank car unsafe for transportation, and, for DOT-115 tank cars, an internal inspection of the inner container and external inspection of the outer shell and heads for abrasion, corrosion, cracks, dents, distortions, defects in welds, or any other condition that makes the tank car unsafe for transportation;

(2) When an internal lining or internal coating is removed or applied, an internal inspection of the tank shell and heads for abrasion, corrosion, cracks, dents, distortions, defects in welds, and any other condition that makes the tank car unsafe for transportation;

(3) An inspection of the service equipment, including gaskets, for indications of conditions that make the tank car unsafe for transportation;

(4) An inspection for missing or loose bolts, nuts, and other fasteners that make the tank car unsafe for transportation;

(5) An inspection of all bolted, threaded, and quick-disconnect closures on the tank car for conditions that may make the tank car unsafe for transportation, including an inspection of any protective housing for proper condition;

(6) An inspection of excess flow valves with threaded seats for tightness and operability; and

(7) An inspection of the required markings on the tank car for legibility.

(e) **Structural integrity inspection and test.** (1) Each tank car owner shall ensure qualification of the high-stressed structural elements on the tank. At a minimum, the structural integrity inspection and test shall include:

(i) All transverse fillet welds greater than 0.64 cm (0.25 inch) within 121.92 cm (4 feet) of the bottom longitudinal centerline except body bolster pad attachment welds;

(ii) The termination of longitudinal fillet welds greater than 0.64 cm (0.25 inch) within 121.92 cm (4 feet) of the bottom longitudinal center line; and

(iii) The tank shell butt welds within 60.96 cm (2 feet) of the bottom longitudinal center line, unless the tank car owner can determine by analysis (e.g. finite element analysis, damage-tolerance analysis, or service reliability assessment) that the structure will not fail within its operational life. The owner must maintain all supporting documentation used to make such determination at its principal place of business and make the data available to FRA upon request.

(2) For Class DOT-115 tanks, paragraphs (e)(1) (i), (ii), and (iii) of this section apply only to the outer shell fillet welds and to the (non-reinforced) exposed outer shell butt welds.

(3) The inspection requirements of paragraph (e)(1)(iii) do not apply to reinforced tank shell butt welds until the time of lining removal or application for tank cars with an internal lead, glass, or rubber lining.

(4) Each tank car facility shall inspect and test the elements identified in paragraph (e)(1) above by one or more of the following methods:

(i) Dye penetrant test
(ii) Radiography test
(iii) Magnetic particle test
(iv) Ultrasonic test, or
(v) Direct or remote visual inspection

(f) **Thickness tests.** (1) Each tank car facility shall measure the thickness of the shell, heads, sumps, domes, and nozzles on each tank car by using a device capable of accurately measuring the thickness to within ±0.05 mm (±0.002 inch).

(2) Each tank car tank shall have a thickness test measurement:

(i) At the time of an internal lining or internal coating application or replacement; or

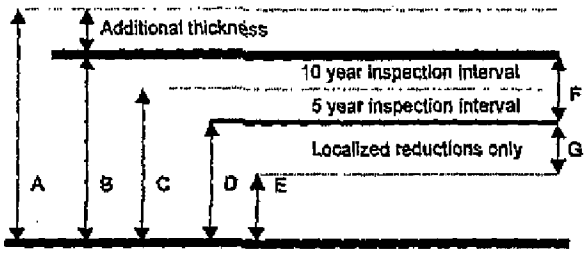
(ii) At least once every 10 years for a tank that does not have an internal lining or internal coating; or

(iii) At least once every 5 years for a tank that does not have an internal lining or internal coating when:

(A) The tank is used to transport a material listed in Attachment A of this exemption (i.e., materials corrosive to the tank); and

(B) The remaining shell and head thickness is at or below line C in Figure A of this paragraph.

Figure A
Tank Shell Thickness Qualification Frequencies



Where:

- *A As-built tank shell thickness, with additional thickness.*
- *B Required minimum tank shell or head thickness after forming per part 179.*
- *C Inspection frequency adjustment point (required minimum shell or head thickness, minus ½ of the table value in paragraph (g) of this section).*
- *D Condemning limit for general corrosion (required minimum shell or head thickness, minus the table value in paragraph (g) of this section).*
- *E Condemning limit for localized corrosion (required minimum shell or head thickness, minus the table value in paragraph (g) of this section, minus 1.58 mm (1/16-inch)). See Note 1 in paragraph (g) of this section for diameter limitations and minimum separation distances.*
- *F Allowable shell thickness reduction (table value in paragraph (g) of this section).*
- *G Additional thickness reduction for localized areas.*

(3) For a localized repair of an internal lining or internal coating where a commodity listed in Attachment A of this alternative program has contacted the tank, a qualified individual shall verify conformance with paragraph (g) of this section by measuring the shell or head in the area of the repair. The thickness test applies only to the non-lined or non-coated repair area and is not a qualification event. Modification of the tank car stencil is not required.

(4) Each tank car owner shall ensure that a tank car will not operate below the condemning limit for general corrosion, or the condemning limit for localized corrosion, as shown in Figure A of this paragraph.

(5) For sumps, domes, nozzles, and nozzle reinforcements the tank car owner shall determine if any reduction in the wall thickness affects the design levels of reliability and safety built into the sump, dome, tank nozzle, or nozzle reinforcement. Each tank car owner must maintain at its principal place of business documentation describing the allowable thickness reductions for sumps, domes, nozzles, and nozzle reinforcements. This documentation must be available to FRA upon request.

(6) After repairs, alterations, conversions, modifications, or blasting of a tank car that results in a reduction to the tank, a qualified individual shall measure the thickness of the tank in the area of reduced thickness to ensure that the thickness of the tank conforms to paragraph (g) of this section.

(g) **Service life shell thickness allowance.** If a qualified individual finds a tank with a head or shell thickness below the required minimum thickness (after forming for its specification), as stated in 49 CFR 179, the tank may continue in service if any reduction in the required minimum thickness is not more than that provided in the following table.

Allowable Shell Thickness Reductions

Marked Tank Test Pressure	Top shell and tank head	Bottom shell
60 psig < 200 psig	3.17 mm 1/8 inch	1.58 mm 1/16 inch
≥ 200 psig	0.79 mm 1/32 inch	0.79 mm 1/32 inch

Note 1. A tank car owner may add an extra 1.58 mm (1/16-inch) to the values in the table for local reductions. Local reductions are those that do not exceed 20.32 linear centimeters (8-linear inches), measured at the longest diameter, and are separated from other local reductions by at least 40.64 cm (16 inches).

Note 2. Any reduction in the tank car shell thickness may not affect the structural strength of the tank car to the extent that the tank car no longer conforms to Section 6.2 of the AAR Specifications for Tank Cars.

Note 3. Shell thickness reductions apply only to the outer shell for Class DOT-115 tank cars. There is no shell or head thickness reduction authorized for the inner tank.

(h) **Safety system inspection.** Each tank car owner shall ensure qualification of the tank car safety systems. However, inspections of foam or cork insulation systems are not required.

(i) **Lining and coating inspection and test.** (1) Each lining or coating owner shall ensure for the qualification of a lining or coating used to protect the tank from a material listed in Attachment A of this alternative program (i.e., materials corrosive to the tank). The owner of the lining or coating shall establish and maintain a record of the service life of the lining or coating and commodity combination. Before July 1, 2006, the owner of the lining shall use their knowledge of the lining or coating and commodity pairing to establish an appropriate inspection interval. After July 1, 2006, the owner of the lining or coating shall use the information in these records to determine the appropriate inspection interval for each lining or coating and commodity pairing. This interval will not exceed 8 years, unless the owner of the lining or coating can establish, document, and show that the service history or scientific analysis for the lining or coating and product pairing supports a longer inspection interval. The owner must maintain at its principal place of business a written procedure for collecting and documenting the life of the lining or coating applied within the tank car. The lining or coating owner must provide written procedures, including inspection and test, repair, removal, and application procedures, to the FRA or car owner upon request. In addition, any person that offers a loaded tank car into transportation must provide commodity information to the car owner upon request.

(2) The owner of the lining or coating shall provide the test method and acceptance criteria for the lining or coating to the tank car owner and to the person responsible for qualifying the lining or coating. The tank car facility inspecting and testing the lining or coating shall follow the inspection and test requirements established by the lining or coating owner.

(j) **Leakage pressure test.** Unless the design of the service equipment arrangement precludes it (e.g., there is no fitting to pressurize the tank), each tank car facility shall ensure that tank, service equipment, and closures installed on the tank are leak tested. The test may be conducted with the lading in the tank. The written procedure and test method for leak testing must ensure the sensitivity and reliability of the test method and for the serviceability of

components to prevent premature failure. This section does not apply to facilities that remove closures for the sole purpose of loading or unloading the lading (e.g., blind flanges, pipe plugs, quick-disconnects, etc.).

(k) **Service equipment inspection and test.** (1) Each tank car owner shall ensure for the qualification of tank car service equipment at least once every 10 years. The tank car owner shall analyze the service equipment inspection and test results for any given lading, and, based on the analysis, adjust the inspection and test frequency to ensure that the design level of reliability and safety of the equipment is met. The owner must maintain at its principal place of business all supporting documentation used to make such analyses and inspection and test frequency adjustments. The supporting documentation must be made available to FRA upon request.

(2) Each tank car facility shall qualify service equipment, including reclosing pressure relief devices and interior heater systems in accordance with Appendix D of the Association of American Railroads Specifications for Tank Cars.

(l) **Alternative inspection and test procedures.** In lieu of the other requirements of this section, an alternative inspection and test procedure or interval may be determined from a damage-tolerance evaluation (which must include a determination of the probable locations and modes of damage due to fatigue, corrosion, and accidental damage) or based on a service reliability assessment (which must be supported by analysis of systematically collected data). Any such relief from the requirements of this section must be approved by the Associate Administrator for Safety, FRA.

(m) **Qualification compliance date for tank cars.** (1) After July 1, 2000, each tank car with a metal jacket or with a thermal protection system shall be qualified and maintained in accordance with this section no later than the date the tank car would require a periodic hydrostatic pressure test (i.e., the marked due date on the tank car for the hydrostatic test).

(2) After October 1, 1998, each tank car without a metal jacket and without a thermal protection system shall be qualified and maintained in accordance with this section no later than the date the tank car would require a periodic hydrostatic pressure test (i.e., the marked due date on the tank car for the hydrostatic test).

(3) For tank cars on a periodic hydrostatic pressure test interval greater than 10 years (i.e., Class DOT-103W, 104W, 111A60W1, 111A100W1, and 111A100W3 tank cars), the qualification date is the midpoint between the compliance date in paragraph (m)(1) or (2) of this section and the remaining years until the tank would have had a hydrostatic pressure test.

(4) Tank cars having an internal lead, glass, or rubber lining, shall be qualified no later than 10 years after the compliance date specified in subparagraphs (m)(1) and (2) of this section, except as specified in subparagraphs (e)(1)(iii) and (f) of this section.

180.511 Acceptable results of inspections and tests.

Provided it conforms to other applicable requirements of this subchapter, a tank car is qualified for use if it successfully passes the following inspections and tests conducted in accordance with this subpart:

(a) **Visual inspection.** A tank car successfully passes the visual inspection when the inspection shows no structural defect that may cause leakage from or failure of the tank before the next inspection and test interval.

(b) **Structural integrity inspection and test.** A tank car successfully passes the structural integrity inspection and test when it shows no structural defect that may initiate cracks or propagate cracks and cause failure of the tank before the next inspection and test interval.

(c) **Service life shell thickness.** A tank car successfully passes the service-life shell thickness inspection when the tank shell and heads show no thickness reduction below that allowed in §180.509(g).

(d) **Safety system inspection.** A tank car successfully passes the safety system inspection when each thermal protection system, tank head puncture resistance system, coupler vertical restraint system, and system used to protect discontinuities (e.g., breakage grooves on bottom outlets and protective housings) on the tank car conform to this subchapter.

(e) **Lining and coating inspection.** A tank car successfully passes the lining and coating inspection and tests when the lining or coating conforms to the owner's acceptance criteria.

(f) **Leakage pressure test.** A tank car successfully passes the leakage pressure test when all product piping, fittings and closures show no indication of leakage.

(g) **Hydrostatic test.** A Class 107 or 115 tank car or a riveted tank car successfully passes the hydrostatic test when it shows no leakage, distortion, excessive permanent expansion, or other evidence of weakness that might render the tank car unsafe for transportation service.

180.513 Repairs, alterations, conversions, modifications, and maintenance.

(a) In order to work on tank cars, a tank car facility must comply with the requirements of Appendices A, B, C, D, R, T, and W of the AAR Specifications for Tank Cars.

(b) Unless the exterior tank car shell or interior tank car jacket has a protective coating, after a repair that requires the complete removal of the tank car jacket, the exterior tank car shell and the interior tank car jacket must have a protective coating applied to prevent the deterioration of the tank shell and tank jacket.

(c) Leakage pressure tests as specified in §180.509(j) shall be done when service equipment is replaced.

180.515 Markings.

(a) When a tank car passes the required inspection and test with acceptable results, the tank car facility shall mark the date qualified and the next qualification date (due date) on the tank car in accordance with Appendix C of the AAR Specifications for Tank Cars. When a tank car facility qualifies one or more areas or components on the tank car at the same time (see §180.509(c)(3) of this alternative program), one date may be used to satisfy the requirements of all qualifications.

(b) Converted class DOT 105, 109, 112, 114, or 120 tank cars must have the new specification and conversion date permanently marked in letters and figures at least 0.95 cm (0.375 inch) high on the outside of the manway nozzle or the edge of the manway nozzle flange on the left side of the car. The marking may have the last numeral of the specification number omitted (e.g., DOT 111A100W instead of DOT 111A100W1).

(c) When qualified within six months of installation and protected from deterioration, the test date marking of a pressure relief device is the installation date on the tank car.

180.517 Reporting and record retention requirements.

(a) **Certification and representation.** Each owner of a specification tank car shall retain the certificate of construction (AAR Form 4-2) and related papers certifying that the manufacture

of the specification tank car identified in the documents is in accordance with the applicable specification. The builder's signature on the certificate of construction, and marking of the tank with the tank specification, affirms that all of the appropriate inspections and tests were performed to qualify the tank for continued use. The builder must retain the inspection and test reports to affirm that the tests and inspections required under §180.509 were performed. The owner shall retain the documents throughout the period of ownership of the specification tank car and for one year thereafter. Upon a change of ownership, the requirements of Section 1.3.15 of the AAR Specifications for Tank Cars apply.

(b) **Inspection and test reporting.** Each in-service tank car that is inspected and tested, as specified in §180.509, must have a written or electronic report, in English, according to this paragraph. The owner must retain a copy of the inspection and test reports until successfully completing the next inspection and test of the same type. The inspection and test report must include the following:

(1) Type of inspection and test performed (a checklist is acceptable);
(2) The results of each inspection and test performed;
(3) Reporting mark and number
(4) Tank specification;
(5) Inspection and test date (month and year);
(6) Location and description of defects found and method used to repair each defect;
(7) The name and address of the tank car facility and the name of the inspector.

Attachment A
Hazardous Materials Corrosive to Tanks or Service Equipment

This list contains materials identified either by proper shipping name in 49 CFR 172.101 or shipped under an N.O.S. shipping description that, under certain conditions, have shown to corrode carbon steel tanks or service equipment at a rate that will reduce the design level of reliability and safety of the tank or equipment to an unsafe level before the next qualification. Materials identified on this list are considered corrosive to the tank or service equipment.

While every effort was made to identify materials deemed corrosive to the tank or service equipment, owners and operators are cautioned that this list may not be inclusive. Tank car owners and operators are reminded of their duty to ensure that no in-service tank will deteriorate below the specified minimum thickness requirements in this exemption. (See §180.509(f)(3) of this alternative program).

Based on future thickness tests, this list may be modified based on an analysis of the test results by the car owner, the Department of Transportation, or the Association of American Railroads Tank Car Committee.

Proper Shipping Names
Acetic acid, glacial
Arsenic acid
Bisulphites, aqueous solution
Butyric acid
Ferric chloride, solution
Fluoroboric acid
Fluorosilicic acid
Formaldehyde
Hydrobromic acid, solution
Hydrochloric acid
Hydrochloric acid, solution
Hydrofluoric acid and sulfuric acid mixtures
Hydrofluoric acid, solution
Hydrogen peroxide
Hypochlorite, solution
Methyl methacrylate
Nitric acid
Nitrogen fertilizer solution
Phenyl phosphorus dichloride
Phenyl phosphorus thiodichloride
Phosphoric acid
Phosphorus trichloride
Sodium chlorate
Sodium hydrosulfide
Sulfur, molten
Sulfuric acid
Sulfuric acid, fuming
Sulfuric acid spent
Titanium sulfate, solution
Zinc chloride

Materials transported under an " N.O.S." description
Aluminum chloride
Ammonium bisulfide
Benzoic acid
Black liquor
Calcium lignosulfonate
Hexanoic acid
Lignin liquor
Lithium chloride
Sodium polyacrylate
White liquor